

Proposed Economic Development Start-up Plan for Cyber Security

Economic Development Working Group

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November 2014

The Opportunity

- Existing high-value commercial interests in advanced automation involving advanced computer control of physical systems (UAV's, Automobiles, Manufacturing)
- Corresponding calling for Cyber Security innovations focused on physical systems, including avoidance of
 - Harm to the systems
 - Harm from the systems
- Lack of professionals who know a lot about both
 - Physical system designs, technologies, and risks
 - Cyber Security technology

Leveraging Existing Activities To Get Started

- Vehicle Automation
 - UAV's (MAAP, DoD)
 - Automobile Automation (Autonomy) – VDOT Research, DMV Initiative
- Advanced Manufacturing Related Consortiums
 - CCAM
 - CCALS
- Externally recognized, leading edge, physical system cybersecurity University research

Areas for Stimulation of Economic Development for Automated Vehicles and Advanced Manufacturing

- **Increasing company and university investments in cyber security innovations**
- **Initiation and advancement of early stage companies focusing on cyber physical system security opportunities**
- **Development of a capable professional work force to innovate, manage, implement, and apply new technologies and policies associated with physical system cyber security innovations**
- **Establishment of shared facilities with equipment to enable hands-on experimental work involving cyber security for physical systems**
- **Incentives for cyber security companies to locate in Virginia**

Straw Man \$2.5mm Start-Up Budget

- Overall first year budget - \$2.5mm
 - Stimulation for increasing company and university investments in cyber security innovations (\$1mm)
 - Stimulation for initiation and advancement of early stage companies focusing on cyber physical system security opportunities (\$700K)
 - Development of a capable professional work force to innovate, manage, implement, and apply new technologies and policies associated with physical system cyber security innovations (\$300K)
 - Establishment of shared facilities with equipment to enable hands-on experimental work involving cyber security for physical systems (\$500K)
 - Incentives for cyber security companies to locate in Virginia (\$0)

Stimulation for increasing company and university investments in cyber security innovations (\$1mm)

- Support a competitive state co-funding initiative for industry research related to developing a complementary physical system or cyber security capability in the supported companies - \$500K.
- Start a University research support program for MS/PhD students -\$500K (supporting 10 \$50K one year start-up projects).

Stimulation for initiation and advancement of early stage companies focusing on cyber physical system security opportunities (\$700K)

- Provide funding to smaller companies (2-50 people) to augment their basic product/service line with an initial complementary physical system or cyber security capability - \$500K (6 companies at ~\$80K each).
- Increase MACH37 funding to seed fund cyber physical system security companies. Also increase the % of cyber physical system start-ups supported within the current program - \$200K.

Development of a capable professional work force (\$300K)

- Start development and promotion of university-based intern programs (BS,MS) to start in Summer of 2015. Co-funded with industry participants who are interested in supporting interns - \$200K (start-up program would support initial promotion costs and about 30 students across the state).
- Start development and promotion of what will become self-supporting Professional Ed Programs for delivery next fiscal year- \$100K .
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Establishment of shared facilities with equipment to enable hands-on experimental work (\$500K)

- Support a lab-based initiative as part of education initiatives that allows students, in a controlled environment, to break and protect physical systems - \$500K.

Immediate Issues

- Agreeing Upon and Establishing the Budget
 - Relationship to existing initiatives (e.g., workforce development) and budgets
- Management of the Economic Development Initiatives
 - Exploring Potential for Outsourcing Roles to Centers of Excellence
- Engagement of Stakeholders to Contribute to Plan Refinement and Initiation (Industry, Academia, Federal Govt, Trade Associations)
- Planning for Expanded Follow-on Efforts
Accounting for Actual Progress